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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/565,719	01/25/2006	Ashok M. Adur	1200309N US	7466
35227 7590 01/29/2009 POLYONE CORPORATION 33587 WALKER ROAD AVON LAKE, OH 44012				
EXAMINER				
LENIHAN, JEFFREY S				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/565,719

Applicant(s)

ADUR, ASHOK M.

Examiner

Jeffrey Lenihan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 October 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SI/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. This Office Action is responsive to the amendment filed on 10/28/2008.
2. The objections and rejections not addressed below are deemed withdrawn.
3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office Action.

Claim Objections

4. Claims 2 and 9 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claims 2 and 9 depend from claims 1 and 8, respectively, and recite the limitation of a nucleation agent chosen from the group consisting of "a combination of the acrylic-acid grafted polypropylene, sodium benzoate, and a sorbitol derivative and a combination of the nucleating talc, the norbornane carboxylic acid salt, sodium benzoate, and a sorbitol derivative."
5. The parent claims 1 and 8 recite that a nucleation agent "selected from the group consisting of an acrylic acid-grafted polypropylene, a norbornane carboxylic acid salt, a nucleating talc, and combinations thereof." (emphasis added). The parent claims do not recite the use of either sodium benzoate or a sorbitol derivative. The transitional phrase "consisting of" excludes any element, step, or ingredient not specified in the claim. A

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claim which depends from a claim which "consists of" the recited elements or steps cannot add an element or step (MPEP 2111.03 [R-3]).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. Claims 1-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ehata, et al, JP08157659 (of record) in view of Van Brederode et al, US3966845.

9. A discussion of the disclosure of Ehata can be found in the previous Office Action.

10. Ehata does not recite the use of the nucleating agents specifically recited in the instant claims.

11. Van Brederode discloses that acrylic acid-grafted olefin polymers may be added in small amounts, most preferably from 0.5-2% by weight of A final composition

(Column 3, lines 49-54), to other olefin polymers to act as a nucleating agent (Column 1, lines 51-55). Said nucleating agents are prepared from C_{2-8} α -olefin, preferably polypropylene or polyethylene (Column 4, lines 22-58). Van Brederode teaches that acrylic acid-grafted polyolefin nucleating agents disperse more easily and uniformly in polyolefin resins than other conventional nucleating agents, allowing molding to be performed at lower processing temperatures (Column 2, lines 51-58).

12. As discussed in the previous Office Action, Ehata discloses the use of nucleating agents in a composition comprising a blend of polypropylene and a propylene/ethylene copolymer. Said nucleating agent is required to be an organic system nucleating agent, and may be chosen from sorbitol derivatives, salts of carboxylic acids, and polymer nucleating agent ($\text{¶}0007$). As discussed above, acrylic acid-grafted polypropylene was known in the art at the time of the invention to be useful as a nucleating agent in polyolefin resins. As sorbitol derivatives and acrylic acid-grafted polypropylene were both known in the art to be useful as nucleating agents in polyolefin resins, the examiner takes the position that, barring a showing of unexpected results, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method/molded article disclosed in Ehata by substituting an acrylic acid-grafted polypropylene nucleating agent, as taught by Van Brederode, for the nucleating agents recited in JP08157659. Said modification would maintain the nucleating agent activity desired by Ehata, while having the benefits of improved dispersability of the nucleating agent in the polyolefin resin.

13. Regarding claims 2 and 9, the examiner notes that applicant states in the remarks filed on 10/28/2008 that Ehata teaches both sodium benzoate and sorbitol derivatives as nucleating agents. As discussed above, Van Brederode discloses the use of acrylic acid-grafted polypropylene as a nucleating agent for polyolefin resins.

14. MPEP 2144.06 [R-6] states that it is *prima facie* obvious to combine compositions which are taught by the prior art to be useful for the same purpose, in order to form another composition to be used for the very same purpose. The idea of combining them flows logically from their having been individually taught in the prior art. In re Kerkhoven, 626 F.2d 846, 850, 205 USPQ 1069, 1072 (CCPA 1980) (citations omitted). See also In re Crockett, 279 F.2d 274, 126 USPQ 186 (CCPA 1960) and Ex parte Quadranti, 25 USPQ2d 1071 (Bd. Pat. App. & Inter. 1992). Acrylic acid-grafted polypropylene, sodium benzoate, and sorbitol derivatives are all known in the prior art to be useful as nucleating agents in polyolefin resins. The examiner therefore takes the position that, barring a showing of unexpected results, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Ehata by using a combination of acrylic acid-grafted polypropylene, sodium benzoate, and sorbitol derivative as a nucleating agent to reduce cycle time and improve productivity.

15. Claims 1-14 are rejected under 35 U.S.C. 102(b) as being unpatentable over Asuka, JP 2000095902 (of record) in view of Van Brederode et al, US3966845.

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16. A discussion of the disclosure of Asuka can be found in the previous Office Action.

17. Asuka does not teach the use of the specific nucleating agents recited in the instant claims.

18. As discussed above, Van Brederode discloses the use of acrylic acid-grafted olefin polymers such as polypropylene as nucleating agents in polyolefin resins. Said nucleating agents disperse more easily and uniformly in polyolefin resins than other conventional nucleating agents, thereby allowing molding to be performed at lower processing temperatures.

19. As discussed in the previous Office Action, Asuka discloses the use of nucleating agents in a composition comprising a blend of polypropylene and a propylene/ethylene copolymer. Said nucleating agent is required to be an organic system nucleating agent, and may be chosen from sorbitol derivatives, salts of carboxylic acids, and polymer nucleating agent (¶0007). As discussed above, acrylic acid-grafted polypropylene was known in the art at the time of the invention to be useful as a nucleating agent in polyolefin resins. As sorbitol derivatives and acrylic acid-grafted polypropylene were both known in the art to be useful as nucleating agents in polyolefin resins, the examiner takes the position that, barring a showing of unexpected results, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method/molded article disclosed in Asuka by substituting an acrylic acid-grafted polypropylene nucleating agent, as taught by Van Brederode, for the nucleating agents recited in JP2000095902. Said modification would maintain the nucleating

agent activity desired by Asuka, while having the benefits of improved dispersability of the nucleating agent within the polyolefin resin.

20. Regarding claims 2 and 9, the examiner notes that applicant states in the remarks filed on 10/28/2008 that both sodium benzoate and sorbitol derivatives are taught as nucleating agents by Asuka. As discussed above, Van Brederode discloses the use of acrylic acid-grafted polypropylene as a nucleating agent for polyolefin resins.

21. MPEP 2144.06 [R-6] states that it is *prima facie* obvious to combine compositions which are taught by the prior art to be useful for the same purpose, in order to form another composition to be used for the very same purpose. The idea of combining them flows logically from their having been individually taught in the prior art. Acrylic acid-grafted polypropylene, sodium benzoate, and sorbitol derivatives are all known in the prior art to be useful as nucleating agents in polyolefin resins. The examiner therefore takes the position that, barring a showing of unexpected results, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Asuka by using a combination of acrylic acid-grafted polypropylene, sodium benzoate, and sorbitol derivative as a nucleating agent to reduce cycle time and improve productivity.

Response to Arguments

22. Applicant's arguments filed 10/28/2008 have been fully considered but they are not persuasive.

23. Applicant has argued that the data presented in the Examples 9-11 and Tables 4 and 5 demonstrate the unexpected results obtained with the invention claimed in the instant application.

24. Regarding the rejection of claims 1, 3-8, and 10-14; the allegedly unexpected results in Examples 9-11 cited by applicant are obtained via the use of a combination of either three (Example 9; page 21, Table 3) or four (Examples 10-11; page 21) nucleating agents. The examiner notes that all three of the cited Examples recite the use of sodium benzoate as one of the nucleating agents. As discussed earlier in this Office Action, the independent claims 1 and 8 do not recite the use of sodium benzoate as a nucleating agent; furthermore, the use of the transitional phrase "consisting of" when listing the claimed nucleating agents restricts the claims only to molded articles or methods wherein the recited nucleating agents are used. No additional nucleating agents may be added. The examiner therefore takes the position that data obtained from examples wherein a non-claimed nucleating agent is used cannot be relied upon to overcome the rejection of claims 1, 3-8, and 10-14.

25. Furthermore, the examiner takes the position that the allegedly unexpected results are not commensurate in scope with the claims as they are currently written. As noted above, the cited examples 9-11 all recite the use of a combination of either three or four nucleating agents. The independent claims 1 and 8, however, recite that the nucleating agent is chosen from the group "consisting of an acrylic acid-grafted polypropylene, a norbornane carboxylic acid salt, a nucleating talc, and combinations thereof." The independent claims therefore do not require the use of a mixture of

nucleating agents; rather, the claims read both on the use of combinations of the recited nucleating agents and on the individual use of any one of the recited nucleating agents. Dependent claims 2-7 and 10-14 contain the same limitation. Applicant has not provided any evidence that the allegedly unexpected results of reduced cycle time and improved productivity are obtained when the claimed nucleating agents are used individually.

26. Regarding the rejection of claims 2 and 9; the examiner takes the position that the allegedly unexpected results are not commensurate in scope with the claims as they are currently written. Example 9 discloses the use of 0.15% Polybond™ 1001, an acrylic acid-grafted polypropylene; 0.1% sodium benzoate, and 0.1% Millad™ 3908, a sorbitol derivative (percents are parts by weight in the total composition). Example 9 therefore corresponds to the first combination of agents recited in claims 2 and 9.

27. The examiner notes that the cited Example 9 only discloses one composition wherein the sodium benzoate, sorbitol derivative, and the acrylic acid-grafted polypropylene are used in combination at a ratio of 1:1:1.5. Claims 2 and 9, however, do not recite any ratios in which the individual nucleating agents are combined and therefore read on any molded article or method in which the recited nucleating agents are used together, regardless of the ratios at which they are combined. As applicant has only cited one example wherein allegedly unexpected results were obtained when the nucleating agents are combined in one specific ratio, the examiner takes the position that there is insufficient evidence to establish that the allegedly unexpected

results can be obtained when the recited nucleating agents are combined in any ratio, as is currently allowed by the pending claims.

28. Furthermore, applicant has argued that the combination of nucleating agents as claimed provides for a reduction in cycle time and improved productivity. The examiner notes, however, that applicant has not provided any data regarding improvements in cycle time for the composition of Example 9; rather, reduction in cycle time is only reported for Examples 10 and 11 (page 22, Table 5). The examiner therefore takes the position that applicant has not demonstrated that unexpected results are obtained from the use of a combination of an acrylic acid-grafted polypropylene, a sorbitol derivative, and sodium benzoate.

29. Regarding Examples 10-11, the examiner takes the position that it is unclear how these two Examples are relevant to the instant claims. The second combination of nucleating agents recited in claims 2 and 9 discloses the use of a combination of nucleating talc, a norbornane carboxylic acid salt, sodium benzoate, and a sorbitol derivative. The examiner notes that the cited Examples 10-11 recite the use of a combination of the following nucleating agents: 1) 0.1% sodium benzoate, 2) 0.1% ADKstab NA-11, 3) 0.2% nucleating talc, and 4) 0.15% Hyperform™ HPN-68 (page 21). While Hyperform™ HPN-68 is disclosed to be a norbornane carboxylic acid salt (page 19, Table 1), the examiner notes that applicant states that ADKstab NA-11 is an organic phosphate ester salt (page 11, lines 6-9), not a sorbitol derivative (which are listed on page 10, lines 17-21). Based on applicant's submitted specification, it would therefore

appear that the combination of nucleating agents utilized in Examples 10-11 does not correspond to either of the two combinations recited in claims 2 and 9.

30. In the event that ADKstab NA-11 is a sorbitol derivative as well as an organic phosphate ester salt, the examiner notes that, similar to the discussion of Example 9 above, any allegedly unexpected results obtained from Examples 10-11 are not commensurate in scope with the current claims. Examples 10-11 recite the same ratio for combining the individual nucleating agents. Applicant therefore has not provided evidence that the allegedly unexpected results may be obtained when the recited nucleating agents are combined in any ratio, as allowed by the instant claims.

31. In the remarks filed on 10/28/2008, applicant references the results disclosed in Tables 4 and 5 of the specification, indicating that the modified (defined as containing nucleating agent; see page 21, line 14) thermoplastic vulcanizate (TPV) compositions of Examples 10-11 result in a reduction of cycle time of 22% compared to unmodified TPV compositions as evidence of the allegedly unexpected results. The examiner notes, however, that it was known in the art that the addition of a nucleating agent to a polymer composition results in a reduction in cycle time and improved productivity. Reduction in the cycle time is therefore not an unexpected result. Furthermore, applicant has only compared the cycle time for a thermoplastic vulcanizate (TPV) containing the recited combination of nucleating agents to the cycle time for a TPV which does not contain nucleating agents; applicant has not provided any data to demonstrate that the degree by which the reduction time is reduced (22%) when the recited combination of nucleating agents is used is unexpected in view of reduction times typically obtained

from the addition of nucleating agents as taught in the prior art. The examiner therefore takes the position that insufficient evidence has been presented to establish that unexpected results are obtained in the cited Examples.

Conclusion

32. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey Lenihan whose telephone number is (571)270-5452. The examiner can normally be reached on Monday through Thursday from 7:30-5:00 PM, and on alternate Fridays from 7:30-4:00 PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James J. Seidleck can be reached on 571-272-1078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/ Irina S. Zemell/
Primary Examiner, Art Unit 1796

Jeffrey Lenihan
Examiner, Art Unit 1796

/JL/